Index to Volume 28

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How to Use This Index

This index is of similar form to the Cumulative Indexes of this journal, covering, respectively, Volumes 1–10 and Volumes 11–20, and is composed of two main divisions: the Author Index and the Subject Index.

The Subject Index to Volume 28 of *The Journal of the Acoustical Society of America* lists the titles of all the papers, abstracts, and patents under thirteen section headings as follows: 0, General, Unclassified; 1, Acoustical Society of America; 2, Architectural Acoustics; 3, Books, Bibliographies, and Surveys; 4, Ear and Hearing; 5, Applied Acoustics, Instruments and Apparatus; 6, Musical Instruments and Music; 7, Noise; 8, Standards; 9, Speech and Singing; 10, Ultrasonics (Supersonics); 11, Waves and Vibrations; 12 (Changed to Section 0); and 13, Underwater Sound. Each of these sections is further divided into a considerable number of decimally numbered subjects, which are listed below under the heading, "Classification of Subjects." Each subject is divided into eight parts entitled Papers, Letters to the Editor, Abstracts, Subtitles, Patents, Book Reviews, News, and Errata. Under Papers will be found the original titles of all the papers appearing in the journal on that subject. Under Abstracts are listed the titles of the papers presented at meetings. Since a great amount of valuable material appears in the journal in papers whose titles cannot fully describe all the subjects which the papers cover, some subtitles of papers have been indexed under the heading Subtitles. When subtitles covering the material did not appear in the paper, they were written; the captions of some of the figures were also included under this heading. Thus, while the Subtitles portion of the index is informal, it is hoped that it will increase the probability of finding the desired information quickly. All patents appearing in the journal are listed under the heading Patents. New classifications are added from time to time. The year in which classifications are added appears in parentheses after the subject classes.

The reader or his librarian should go over the list of errata classified under 0.1, and either make the indicated corrections in the original papers or enter a note beside the title of the original paper—"See Erratum, Vol. XX, p. XXX."

References on most subjects can be located immediately by a logical use of the Classification of Subjects below. In case the reference sought is of an unusual character such that there is uncertainty as to the subject under which it might have been classified, this can usually be found quite quickly by the process of eliminating the sections and subjects under which it is quite improbable that it might have been listed. In case of doubt, a title has often been listed under a number of subjects.

Obviously, the Author Index is more convenient than the Subject Index when one knows the name of the author of the paper in which he is interested.

The References to Contemporary Papers on Acoustics are identified in each issue by the same decimal numbers listed below, and may be consulted for references in other journals than our own. In Volume 28 these references will be found on pages 136, 321, 512, 732, 998, and 1305.

Classification of Subjects

0. General, Unclassified

- 0.1 Errata
- 0.2 Conferences, Lectures, and Announcements, not of the Acoustical Society. (Started 1955.)
- 0.3 Non-Acoustical Theories. (Started 1955.)
- 0.4 Non-Acoustic Devices. (Started 1955.)

1. Acoustical Society of America

- 1.1 General, Unclassified
- 1.2 Constitution and By-Laws
- 1.3 History
- 1.4 Honorary Members
- 1.5 Meetings
- 1.6 Members and Membership Lists
- 1.7 Committee Activities. (Started 1956.)

2. Architectural Acoustics

- 2.1 General, Unclassified
- 2.2 Auditorium Design. (See also 7.6.)
- 2.3 Studies of Existing Auditoria
- 2.4 Sound Absorption, Theory and Methods of Measurement of. (See also 2.5.)
- 2.5 Materials for Sound Absorption. Values of Absorption Coefficients and Acoustic Impedances
- 2.6 Noise Reduction by Increased Room Absorption
- 2.7 Reverberation and Echoes. (See also 2.3, 2.4, 2.8, 2.9, and 2.10.)
- 2.8 Reverberation Measuring Instruments. (See also 2.7 and 5.15.)
- 2.9 Sound Transmission, Theory and Methods of Measurement of. (See also 2.10.)
- 2.10 Sound Insulating Structures. Values of Transmission Coefficients
- 2.11 Vibration Insulating Supports
- 2.12 Damping of Panels

3. Books, Bibliographies, and Surveys

- 3.1 Books and Book Reviews
- 3.2 Bibliographies
- 3.3 Patents
- 3.4 Surveys, Historical and Philosophical Literature. (Started 1954.)

4. The Ear and Hearing

- 4.1 General, Unclassified
- 4.2 Anatomy and Physiology of the Ear
- 4.3 Binaural Hearing. Localization
- 4.4 Deafness. (See also 5.5.)
- 4.4.5 Auditory Fatigue. (Started 1955.)
- 4.5 Instruments Relating to Hearing, and for the Testing of Hearing. (See also 5.5.)

4.6 Loudness, Threshold Determinations
4.7 Masking. (See also 5.5.)
4.8 Phase Effects. (See also 4.3.)
4.9 Pitch
4.10 Subjective Tones
4.11 Theories of Hearing
4.12 Timbre
4.13 Ear Acoustical Impedance
4.14 Ear Protectors, Ear Plugs. (Started 1956.)

5. Applied Acoustics, Instruments and Apparatus. (See also 2.8, 4.5, 9.6, 10.3, 13.11, 13.11n, and 13.11t.)

5.1 General, Unclassified
5.2 Amplifiers and Attenuators
5.3 Acoustic and Mechanical Impedance Measurement. (See also 11.4.)
5.4 Analyzers and Filters, Mechanical and Electrical. Acoustic Filters. Oscillographs. (See also 5.15.)
5.5 Audiometers. (See also 4.4 and 4.5.)
5.5.1 Broadcasting
5.6 Chronographs
5.7 Frequency Standards, Frequency Measuring and Recording Instruments
5.8 Loudspeakers, Horns. (See also 5.13, 5.17, and 5.18.)
5.9 Microphones, Vibration Microphones. Microphone Calibration Equipment and Techniques. (See also 5.18 and 13.11t.)
5.10 Navigational Instruments Using Air Sound. Altitude Measuring Instruments. Sound Ranging (for Underwater Ranging see 13.11n). Geophysical Prospecting
5.11 Oscillators, Electrical and Mechanical
5.12 Phase Meters
5.13 Public Address Systems and Sound Picture Installations
5.14 Rayleigh Disks
5.15 Sound Level Meters. Level Recorders. Sound Pressure Measurement. (See also 5.4.)
5.16 Sound Recording and Reproducing. General
5.16d Disk Recording (including cutting and embossing)
5.16f Film Recording (by photographic means)
5.16m Magnetic Recording
5.17 Telephones, Telephone Earphones
5.18 Transducing Principles and Structures. Thermophones. (See also 5.8, 5.9, 5.17, 10.3, 13.7, and 13.11t.)
5.19 Tuning Forks
5.20 Tone and Wave Synthesizers
5.21 Vibration Devices. Devices for Generating or Damping Vibrations. (See also 2.11 and 5.9.)

6. Musical Instruments and Music

6.1 General, Unclassified
6.2 Bells, Xylophones. Other Instruments Having Rigid Vibrators
6.3 Brass Wind Instruments (lip vibrated)
6.4 Drums and Other Membranophonic Instruments
6.5 Pipe Organs
6.6 Pianos and Other Keyboard Stringed Instruments
6.7 Violin Family. Stringed Instruments Except Keyboard Type
6.8 Wood Winds
6.9 Electrical Musical Instruments
6.10 Reed Organs. Accordions, Harmonicas

7. Noise

7.1 General, Unclassified
7.2 Annoyance
7.3 Audiograms of Noise
7.4 City Noise
7.5 Frequency Analyses of Noise
7.6 Noise in Buildings. (See also 2.2.)
7.7 Machinery Noise. Mufflers. Noise Silencers
7.8 Noise Generators. (See also 13.9.)
7.9 Noise of Animals. (Started 1956.)

8. Standards

8.1 General, Unclassified

9. Speech and Singing

9.1 General, Unclassified
9.2 Anatomy and Physiology of the Speech Organs
9.3 Articulation Testing. Intelligibility. Defective Speech
9.4 Frequency of Occurrence of Speech Sounds
9.5 Frequency Analyses of Speech Sounds
9.6 Instruments Relating to Speech and Singing
9.7 Speech Pitch
9.8 Speech Power, Singing Voice Power
9.9 Vibrato
9.10 Phonetics

10. Ultrasonics (Supersonics)

10.1 General, Unclassified
10.2 Light Affected by Ultrasonic Waves
10.3 Ultrasonic Instruments. (See also 5.18.)
10.4 Gases, Ultrasonic Velocities, Dispersion, and Absorption. (See also 11.3.)
10.5 Liquids, Ultrasonic Velocities, Dispersion, and Absorption. (See also 13.2 and 13.3.)
10.6 Solids, Ultrasonic Velocities, Dispersion, and Absorption
10.7 Physical Effects of Ultrasonic Waves. (See also 10.2.)
10.8 Chemical Effects of Ultrasonic Waves
10.9 Biological Effects of Ultrasonic Waves

11. Waves and Vibrations. (See also 13.)

11.1 General, Unclassified
11.1.5 Analogies. (In previous volumes see 11.7.) (Started 1954.)
11.2 Diffraction. Interference. Scattering. Reflection. Echoes, Standing Waves
11.2.1 Gross Movement of Matter by Sound or Vibration. Acoustic Streaming. Chladni Figures. Kundt's Striae. Sensitive Flames. (See also 5.14 and 10.7.)
11.3 Propagation of Sound. Absorption during Propagation. Velocity of Sound. Second Sound. Refraction. Wavelength. Doppler Effect. (See also 10.4, 10.5, 10.6, 13.2, and 13.3.)
11.4 Radiation from Vibrating Objects. Acoustic Impedance. Mechanical Impedance. (See also 5.3 and 13.7.)
11.5 Sounds of Finite Amplitude. Distortion. (See also 13.10.)
11.6 Sound in Tubes
11.6.1 Sources of Sound. (See also 7.8 and 11.4.)
11.7 Theory of Waves and Vibrating Systems. (See also 5.4 and 11.1.5.)
11.8 Biological Effects of Vibration and Sound. (See also 10.9.)

12. (Changed to Section 0)

13. Underwater Sound

13.1 General, Unclassified
13.2 Propagation of Sound in Water. Attenuation. Fluctuation

13.3 Velocity of Sound in Water. Refraction. Doppler Effect
13.4 Reflection. Echoes. Structures for Absorbing Sound in Water
13.5 Interference. Diffraction
13.6 Scattering. Reverberation in Water
13.7 Radiation from Objects Vibrating under Water. Acoustical Impedance. Mechanical Impedance
13.8 Sound Generation by Fluid Motion, Bubbles, Turbulence, or Cavitation
13.9 Noise in Water. Ship Noise. Biological Noises
13.10 Sounds of Finite Amplitude in Water. Explosions. Distortion. Cavitation. (See also 11.5.)
13.11 Instruments Relating to Underwater Sound. General
13.11n Navigational Instruments Using Underwater Sound. Underwater Listening and Echo Ranging Devices. Sonar
13.11t Transducers for Underwater Sound. Transducer Calibration. (See also 5.18.)

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Numerals in boldface type refer to volume numbers. (A) designates Abstract; (L) designates Letter to the Editor; (T) designates Title only; (P) designates Patent.

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Alger, Philip L. and Edward Erdelyi. Calculation of the magnetic noise of polyphase induction motors. **28**: 1063—1956
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Allen, Clayton H. Noise from centrifugal fans. **28**: 758(A)—1956
Alons, L. Transient response of loudspeaker paper diaphragms. **28**: 791(A)—1956
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—— **and Wesley L. Eddy.** Patent 2,686,846. Magnetic transducer head. **28**: 144—1956
—— (see Barany, Edmund). **28**: 145(P), 750(P)—1956
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—— **and J. C. Webster.** Survey of the noise attenuation characteristics of navy air traffic control towers. **28**: 163(A)—1956
—— (see Webster, J. C.). **28**: 631—1956
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Zwislocki, J. and R. S. Feldman. Just noticeable differences in dichotic phase. **28**: 152(A), 860—1956

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0. General, Unclassified

0.1 Errata

Acoustical streaming in the vicinity of a sphere. C. A. Lane. **28**: 1293—1956

Disperson and simple harmonic point sources in wave ducts. Ivan Tolstoy. **28**: 132—1956

On noise of aerodynamic origin. Osman K. Mawardi and Ira Dyer. **28**: 314—1956

Scattering of sound in a turbulent medium. Robert H. Kraichnan. **28**: 314—1956

0.2 Conferences, Lectures, and Announcements, not of the Acoustical Society. (Started 1955.)

Acoustically speaking. Mary Gates. **28**: 134—1956

Acoustics for aeronautical engineers. **28**: 317—1956

Audiology for industry. **28**: 728—1956

International Committee on Biological Acoustics [Comité International de biologie acoustique; Internationale Vereingigung für Biologische Akustik]. **28**: 995—1956

Shure acoustics scholarships. **28**: 507—1956

Society of Exploration Geophysicists' election. **28**: 1300—1956

Speech Communication Research Symposium. **28**: 531—1956

Spring Meeting of S. E. G. **28**: 1300—1956

Ultrasonics and its application. L. Brekhovskikh. **28**: 1296—1956

0.3 Non-Acoustical Theories. (Started 1955.)

PAPERS

Application of two ultrasonic methods to the determination of the ratio p/q of the photoelastic constants of optical glasses. H. F. Gates and E. A. Hiedemann. **28**: 1222—1956

Group theory of vibrations of symmetric molecules, membranes, and plates. M. A. Melvin and S. Edwards, Jr. **28**: 201—1956

LETTERS TO THE EDITOR

Concerning a reference quantity for power levels. Cyril M. Harris. **28**: 993—1956

Derivation of the free-space scalar Green's function. Donald H. Robey and Donald H. Potts. **28**: 723—1956

Suggestion on reference quantities for power levels. Leo L. Beranek. **28**: 725—1956

ABSTRACTS

Additive relationships between molecular quantities and sound velocity in liquids (Additive Zusammenhänge zwischen Molekülgrössen und Schallgeschwindigkeiten in Flüssigkeiten). Werner Schaaffs. **28**: 799—1956

Aerodynamic mixing in a high-intensity standing-wave sound field. William R. Mickelsen and Lionel V. Baldwin. **28**: 797—1956

Bore-hole coupling experiment. F. A. Angona and J. E. White. **28**: 801—1956

Determination of elastic constants of cubic crystals by means of ultrasonic elastograms (Die Bestimmung der elastischen Konstanten kubischer Kristalle mittels der Methode der Ultraschall-Elastogramme). Ludwig Bergmann. **28**: 786—1956

Difficulties in seismic prospecting resulting from bubbles in fluids. J. O. Parr, Jr. **28**: 801—1956

Disk-loaded torsional wave delay line. I (Construction and test). P. Andreatch, Jr., and Robert N. Thurston. **28**: 795—1956

Disk-loaded torsional wave delay line. II (Theoretical interpretation of results and design information). Robert N. Thurston. **28**: 795—1956

Dynamic method for measuring the constants of elasticity and damping in solids (Nouvelle Méthode Dynamique de Mesure de Constantes d'Elasticité et de la Capacité d'Amortissement). Robert Cabarat. **28**: 786—1956

Effect of vibration on convective heat transfer. Robert Lemlich. **28**: 798—1956

Effects of acoustical waves on the annealing of steels. H. V. Fairbanks. **28**: 786—1956

Elastic constants of staurolite. J. Bhimasenachar and G. Vankata Rao. **28**: 795—1956

Elastic waves in corrugated plates. Miguel C. Junger and P. W. Smith, Jr. **28**: 794—1956

Hydrodynamic theory of shock waves in solids. George E. Duvall. **28**: 793—1956

Interactions of nonuniform shock waves. W. E. Drummond. **28**: 795—1956

Investigation of acoustic properties of organic substances in the critical region. V. F. Nozdrev. **28**: 799—1956

Irradiation changes of acoustical and mechanical constants in aluminum. Isaai Lefkowitz and Paul B. Oncley. **28**: 152—1956

Low- and high-mode dispersion in elastic plates. Ivan Tolstoy and Eugene Usdin. **28**: 794—1956

Magneto-hydrodynamic waves. Ernst Åström. **28**: 799(T)—1956

Measurements of gas temperatures in combustion engines by ultrasound. Thomas P. Roma. **28**: 799—1956

Nondestructive testing: objectives and potentialities. Wilfred Roth. **28**: 785—1956

Nonspecular reflection of sound by finite plates and shells in liquids. Leonid M. Ljamshev. **28**: 794—1956

On the discontinuity of sound velocity in elements and compounds near the boiling and fusion points (Über den Sprung der Schallgeschwindigkeit in Elementen und Verbindungen am Siedepunkt und am Schmelzpunkt). Werner Schaaffs. **28**: 798—1956

On the transition to the geometrical approximation in the theory of elasticity. M. L. Levin and S. M. Rytov. **28**: 794—1956

Precipitation hardening in an ultrasonic field. Laurence McD. Schetky. **28**: 786—1956

Propagation of elastic waves in plates and bars of solid material with low shear modulus. Konrad Tamm, III. **28**: 793—1956

Sonic analysis of fracture. H. Kolsky. **28**: 786—1956

Theoretical and experimental investigation of a pseudo-Raleigh wave. E. Strick, W. L. Roever, and T. F. Vining. **28**: 794—1956

Transmission of pulses through plates. A. S. Ginzbarg. **28**: 794—1956

Vibration treatment of metals. H. J. Seemann. **28**: 785—1956

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Analysis of electric circuits. William H. Middendorf. **28**: 731(T)—1956

Applied electrical measurements. Isaac S. Kinnard and fourteen contributors. (Reviewed by Floyd A. Firestone.) **28**: 1304—1956

International dictionary of physics and electronics. Walter C. Michels and fourteen Associate Editors. (Reviewed by Floyd A. Firestone.) **28**: 1304—1956

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Mathematics for electronics with applications. Henry M. Nodelman and Frederick W. Smith. (Reviewed by Floyd A. Firestone.) **28**: 1304—1956

Spheroidal wave functions. J. A. Stratton, P. M. Morse, L. J. Chu, J. D. C. Little, and F. J. Corbato. (Reviewed by Philip M. Morse.) **28**: 997—1956
Surveys in mechanics. G. K. Batchelor and R. M. Davies, editors. (Reviewed by R. B. Lindsay.) **28**: 1303—1956
Vacuum-tube circuits and transistors. Lawrence B. Arguimbau and Richard B. Adler. (Reviewed by Floyd A. Firestone.) **28**: 1304—1956

0.4 Non-Acoustic Devices. (Started 1955.)

PAPERS
Sawtooth shock as a component test. Charles T. Morrow and Homer I. Sargeant. **28**: 959—1956

ABSTRACTS
Recent experiences with the variables of the ultrasonic machining process. Dieter Goetze. **28**: 787—1956
Vibratory drilling of oil wells. Ralph Simon. **28**: 787—1956

1. Acoustical Society of America

1.1 General, Unclassified
Announcement of forthcoming election. **28**: 134—1956
President's Report 1954–1955. **28**: 315—1956
Promotion and development of the Acoustical Society of America. **28**: 504—1956
Status of growth of Regional Chapters in the Society. **28**: 728—1956
Subject classification of the Table of Contents. **28**: 318—1956
Ultrasonics and its application. L. Brekhovskikh. **28**: 1296—1956
Wallace Clement Sabine Award. **28**: 1297—1956

1.2 Constitution and By-Laws
Proposed amendment to the by-laws. **28**: 319—1956

1.5 Meetings
Author Index to Abstracts of the Providence Meeting, December 15, 16, and 17, 1955. **28**: 164—1956
Dates of future meetings of the Acoustical Society. **28**: 134, 319, 508, 729, 995, 1302—1956
51st Meeting of the Society. **28**: 1293—1956
Friendly report of ICA as published in Pravda. **28**: 1296—1956
Program of the Fiftieth Meeting of the Acoustical Society of America, Brown University, Providence, Rhode Island, December 15, 16, and 17, 1955. **28**: 149—1956
Program of the Fifty-First Meeting of the Acoustical Society of America. Joint Meeting with the Second ICA Congress. Massachusetts Institute of Technology and Harvard University, Cambridge, Massachusetts, June 17–23, 1956. **28**: 756—1956
Second ICA Congress, ICA Issue 1. **28**: 1015—1956
Status of growth of Regional Chapters in the Society. **28**: 728—1956
The 50th meeting of the Society. **28**: 315—1956

ABSTRACTS
Address. Human objectives of technology. Detlev W. Bronk. **28**: 756(T)—1956
Greetings. Warren P. Mason. **28**: 756(T)—1956
Response. Cornelis W. Kosten. **28**: 756(T)—1956
This Congress and the next. Erwin Meyer. **28**: 804(T)—1956
Welcome. James Rhyne Killian. **28**: 756(T)—1956

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Author Index to Abstracts of the Acoustics Congress-Meeting. **28**: 805—1956

1.6 Members and Membership Lists
Alva B. Clark. Necrology. **28**: 318—1956
Charles Emory Nelson. Necrology. **28**: 1298—1956
Dr. Beyer passes the References to Dr. Thurston. **28**: 133 1956
Dr. Eric A. Walker, Vice-President of Penn State University. **28**: 132—1956
Dr. Ernest Keller appointed Panellit research director. **28**: 507—1956
Dr. Robert O. Fehr promoted at General Electric. **28**: 994—1956
Dr. Toshio Wagai thumbs ride to ICA Congress from Japan. **28**: 1296—1956
Eric A. Walker, President of Pennsylvania State University. **28**: 993—1956
Floyd A. Firestone awarded medal by The Franklin Institute. **28**: 1298—1956
Frank H. Slaymaker heads Electroacoustics Research Group at Stromberg-Carlson. **28**: 1299—1956
Frank R. Clarke receives fellowship. **28**: 994—1956
George L. Lamb, Jr., receives acoustics fellowship. **28**: 1300—1956
Harry F. Olson receives IRE Achievement Award. **28**: 1298—1956
Harry F. Olson receives SMPTE Warner Award. **28**: 132—1956
Harry F. Olson receives the John Scott Award. **28**: 728—1956
Heinrich G. Barkhausen. Necrology. **28**: 728—1956
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John R. Engstrom appointed Staff Physicist at IBM. **28**: 1300—1956
Licklider takes over the Associate Editorship from Miller. **28**: 133—1956
Luke L. Watson. Necrology. **28**: 508—1956
Martin new chairman of IRE-PGA. **28**: 1299—1956
Mervin J. Kelly honored by Swedish Royal Academy of Sciences. **28**: 317—1956
New associates and members. **28**: 135, 319, 508, 729, 995, 1302—1956
Ralph Bown retires from Bell Telephone Laboratories. **28**: 507—1956
Raney takes over associate editorship from Morse. **28**: 1297—1956
Russell J. Tinkham, Manager of Audio Custom Engineering at Ampex. **28**: 1299—1956
Sustaining members. **28**: (lists precede first page of text in each issue)—1956
von Békésy elected to National Academy of Sciences. **28**: 728—1956
Walter A. MacNair becomes a Vice President of BTL. **28**: 317—1956

1.7 Committee Activities. (Started 1956).
Acoustical Standards Board formed. Sectional Committee Z24 to be divided into three new Sectional Committees. **28**: 1301—1956
Committee on Physical Acoustics. **28**: 1301—1956
Committee on Speech Communication participates in a Symposium, a Seminar, and a Conference. **28**: 1301—1956
Nominating Committee and Committee on Medals and Awards meet at Rhode Island. **28**: 317—1956
Report of the Committee on the Development and Promotion of the Society. **28**: 504—1956
Report on activities of the Technical Committee on Architectural Acoustics for the period July 1, 1955 through December 31, 1955. **28**: 506—1956
Status of growth of Regional Chapters in the Society. **28**: 728—1956
Technical committees of the Society and their chairmen. **28**: 1301—1956

2. Architectural Acoustics

2.1 General, Unclassified

PAPERS
Criteria for office quieting based on questionnaire rating studies. Leo L. Beranek. **28**: 833—1956

Measurement of the noise of ducted fans. C. G. Van Niekerk. **28**: 681—1956

ABSTRACTS

Diffusion properties of various irregular panels. Chester M. McKinney and Richard N. Lane. **28**: 775—1956

Effect of sound reinforcement system in a room on the reverberation time and clearness. Tadamoto Nimura and Ken'iti Kido. **28**: 792—1956

Review of the Netherlands study of noise control in multiple dwellings. J. van den Eijk, M. L. Kasteleijn, and C. W. Kosten. **28**: 765—1956

Survey of the noise attenuation characteristics of Navy air traffic control towers. H. R. Beitscher and J. C. Webster. **28**: 163—1956

NEWS

Report on activities of Technical Committee on Architectural Acoustics for the period July 1, 1955 through December 31, 1955. **28**: 506—1956

2.2 Auditorium Design. (See also 7.6.)

ABSTRACTS

Acoustical and organ design for church auditoriums. Albert R. Rienstra. **28**: 790—1956

Acoustical problems of the Stratford (Ontario) permanent Shakespearean Theater. Robert H. Tanner. **28**: 775—1956

Acoustics of the Rochester (New York) War Memorial Auditorium. Benjamin Olney and Roy S. Anderson. **28**: 775—1956

Design, construction, and testing of the M. I. T. Kresge Auditorium. Robert B. Newman. **28**: 775—1956

Effect of splayed walls of a room on the steady-state sound transmission characteristics. Tadamoto Nimura and Kimio Shibayama. **28**: 774—1956

Empirical acoustic criterion. T. Somerville and J. W. Head. **28**: 774—1956

Influence of acoustics on architectural design. Robert B. Newman. **28**: 149—1956

Optimal acoustical design of rooms for performing, listening, and recording. Walter Kuhl. **28**: 763(T)—1956

Scale model investigations for large auditoria. Roger Lamoral. **28**: 775—1956

2.3 Studies of Existing Auditoria

ABSTRACTS

Acoustics of school music rehearsal rooms. Robert W. Young and Robert S. Gales. **28**: 791—1956

Distribution of sound intensities and path time difference of reflections in halls. Georg R. Schodder, III. **28**: 774—1956

Physical measurements in rooms and their meaning in terms of hearing conditions. Erwin Meyer. **28**: 763(T)—1956

SUBTITLES

Measured and calculated reverberation time for Recital Hall (The University of Texas). R. N. Lane. **28**: 104—1956

Measured response times in Batts Hall (The University of Texas). R. N. Lane. **28**: 103—1956

Measured response times in Townes Hall (The University of Texas). R. N. Lane. **28**: 104—1956

2.4 Sound Absorption, Theory and Methods of Measurement of. (See also 2.5.)

PAPERS

Electronic control of noise, vibration, and reverberation. Harry F. Olson. **28**: 966—1956

Reactive components in sound absorber construction. Carl Becker. **28**: 1068—1956

Some notes on the measurement of acoustic impedance. Osman K. Mawardi. **28**: 351—1956

ABSTRACTS

Absorption of sound by patches of absorbent material. Richard K. Cook. **28**: 788—1956

Some contributions to standards on measurements in architectural acoustics. Richard V. Waterhouse. **28**: 766—1956

2.5 Materials for Sound Absorption. Values of Absorption Coefficients and Acoustic Impedances

PAPERS

Absorption characteristics of upholstered theater chairs and carpet as measured in two auditoriums. R. N. Lane. **28**: 101—1956

Measured absorption characteristics of resonant absorbers employing perforated panel facings. E. E. Mikeska and R. N. Lane. **28**: 987—1956

Reactive components in sound absorber construction. Carl Becker. **28**: 1068—1956

ABSTRACTS

Absorption characteristics of upholstered theater chairs and carpet as measured in two auditoriums. R. N. Lane. **28**: 149—1956

Diffusion properties of various irregular panels. Chester M. McKinney and Richard N. Lane. **28**: 775—1956

New light-weight acoustical absorber. Per B. Brüel. **28**: 766—1956

Reactive components in sound-absorber construction. Carl Becker. **28**: 766—1956

Resonant absorbers and porous absorbers with resonant cavities. Eugen Skudrzyk. **28**: 149—1956

Some laminar acoustical materials. Bill G. Watters and Jordan J. Baruch. **28**: 766—1956

PATENTS

Air conditioning and sound deadening ceiling installation. George P. Little. **28**: 742—1956

Light diffusing and sound absorbing unit. Herbert K. Wong. **28**: 742—1956

Sound absorbing wall treatment. Robert L. Siering. **28**: 741—1956

Sound deadening means for jet engine test stands. Carl C. Droeger. **28**: 742—1956

Test cell. Otto H. Klausmeyer. **28**: 742—1956

Wall or ceiling treatment. Manley R. Price. **28**: 741—1956

2.6 Noise Reduction by Increased Room Absorption

ABSTRACTS

Acoustics of large offices. William W. Lang. **28**: 766—1956

2.7 Reverberation and Echoes. (See also 2.3, 2.4, 2.8, 2.9, and 2.10.)

ABSTRACTS

Determining acoustic quality from reverberation curves. Per V. Brüel. **28**: 774—1956

Distribution of sound intensities and path time difference of reflections in halls. Georg R. Schodder, III. **28**: 774—1956

2.8 Reverberation Measuring Instruments. (See also 2.7 and 5.15.)

ABSTRACTS

Comparison of reverberation measuring techniques. William Ranger Farrell. **28**: 774—1956

Practical production and use of multitones. Auguste C. Raes. **28**: 775—1956

Use of the General Radio type 1556-A impact noise analyzer to measure reverberation time. C. D. Anderson and R. N. Lane. **28**: 774—1956

2.9 Sound Transmission, Theory and Methods of Measurement of. (See also 2.10.)

PAPERS

Analog circuit representation for wall panels. Albert D. Frost. **28**: 1285—1956

ABSTRACTS

Transmission loss of walls in studios. Walter Kuhl. **28**: 766—1956

2.10 Sound Insulating Structures. Values of Transmission Coefficients

ABSTRACTS

Improving the insulation of common stud walls. Stig Ingemansson. **28**: 766(T)—1956

Sound isolation requirements for public school classrooms. Richard N. Lane and Eugene E. Mikeska. **28**: 766—1956
Standards of sound insulation in buildings. Alan T. Pickles. **28**: 765—1956
Subjective method for the evaluation of sound insulation. J. J. Geluk. **28**: 766—1956
Survey of the noise attenuation characteristics of Navy air traffic control towers. H. R. Beitscher and J. C. Webster. **28**: 163—1956
Transmission loss of walls in studios. Walter Kuhl. **28**: 766—1956

PATENTS
Furred wall construction. Nels Nelsson. **28**: 742—1956

2.11 Vibration Insulating Supports

PATENTS
Instrument mounting structure. Lennox F. Beach. **28**: 743—1956
Resilient foot for a meter mechanism. Milo M. Triplett. **28**: 743—1956
Structure for reduction of audible sound. Harold C. Stewart and James E. Holcomb. **28**: 1314—1956
Supporting of engines and other machinery. John Granville Withers and Richard Stansfield. **28**: 743—1956
Vibration mountings. Leon F. Thiry. **28**: 743—1956

3. Books, Bibliographies, and Surveys

3.1 Books and Book Reviews

BOOK REVIEWS
Analysis of electric circuits. William H. Middendorf. **28**: 731(T)—1956
Applied electrical measurements. Isaac S. Kinnard and fourteen contributors. (Reviewed by Floyd A. Firestone.) **28**: 1304—1956
A textbook of sound. A. B. Wood. (Reviewed by Osman K. Mawardi.) **28**: 731—1956
Einführung in die Siebschaltungstheorie der Elektrischen Nachrichtentechnik (Introduction to the filter theory in electrical communication). Richard Feldtkeller. **28**: 997(T)—1956
Grundlagen der Elektroakustik. W. Reichardt. (Reviewed by Harry F. Olson.) **28**: 1303—1956
Hi-Fi loud speakers and enclosures. Abraham B. Cohen. **28**: 731(T)—1956
Igirisu no Si, Nippon no Si (English verse and Japanese verse). Kiyosuke Kanetune and Tamako Miyauti. (Reviewed by Yukio Nakamura.) **28**: 730—1956
International dictionary of physics and electronics. Walter C. Michels and fourteen Associate Editors. (Reviewed by Floyd A. Firestone.) **28**: 1304—1956
Linear transient analysis, Volume 2. Ernst Weber. (Reviewed by Floyd A. Firestone.) **28**: 1304—1956
Manual of phonology. Charles F. Hockett. (Reviewed by Morris Halle.) **28**: 509—1956
Mathematics for electronics with applications. Henry M. Nodelman and Frederick W. Smith. (Reviewed by Floyd A. Firestone.) **28**: 1304—1956
Measurement of vibration. Ervin E. Gross, Jr. (Reviewed by Floyd A. Firestone.) **28**: 136—1956
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Spheroidal wave functions. J. A. Stratton, P. M. Morse, L. J. Chu, J. D. C. Little, and F. J. Corbato. (Reviewed by Philip M. Morse.) **28**: 997—1956
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The art of melody. Arthur C. Edwards. (Reviewed by Floyd A. Firestone.) **28**: 731—1956
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Ultrasonic engineering. Alan E. Crawford. (Reviewed by R. B. Lindsay.) **28**: 509—1956
Vacuum-tube circuits and transistors. Lawrence B. Arguimbau and Richard B. Adler. (Reviewed by Floyd A. Firestone.) **28**: 1304—1956

3.2 Bibliographies

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3.3 Patents

Review of acoustical patents. Robert W. Young. **28**: 142, 331, 519, 741, 1009, 1314—1956

3.4 Surveys, Historical and Philosophical Literature. (Started 1954.)

ABSTRACTS
Address. Human objectives of technology. Detlev W. Bronk. **28**: 756(T)—1956

4. The Ear and Hearing

4.1 General, Unclassified

PAPERS
Annoyance threshold judgments of bands of noise. Walter Spieth. **28**: 872—1956
Auditory detection of the presence and absence of signals in noise. Grant Fairbanks, Arthur S. House, and Jay Melrose. **28**: 614—1956
Criteria for office quieting based on questionnaire rating studies. Leo L. Beranek. **28**: 833—1956
Detection of signals in noise: a comparison between the human detector and an electronic detector. Chalmers W. Sherwin, Frank Kodman, Jr., John J. Kovaly, Wilbert C. Prothe, and Jay Melrose. **28**: 617—1956
Effects of two message-storage schemes upon communications within a small problem-solving group. W. F. Bertsch, J. C. Webster, R. G. Klumpp, and P. O. Thompson. **28**: 550—1956
Growing points in multichannel communication. D. E. Broadbent. **28**: 533—1956
"Human 'cross-correlator' "—a technique for measuring certain parameters of speech perception. E. Colin Cherry and Bruce Mc A. Sayers. **28**: 889—1956
Identification of sound level and "matching from sample." Irwin Pollack. **28**: 412—1956
Intelligibility of UHF and VHF transmissions at fifteen representative air traffic control towers. H. R. Beitscher and J. C. Webster. **28**: 561—1956
Learning, a major factor influencing preferences for high-fidelity reproducing systems. Roger E. Kirk. **28**: 1113—1956
Sensitivity to changes in the interruption rate of white noise. G. H. Mowbray, J. W. Gebhard, and C. L. Byham. **28**: 106—1956
Study of MAYDAY and S.O.S. as radiotelephony distress signals. Keith K. Neely. **28**: 554—1956
Theory of recognition. Wilson P. Tanner, Jr. **28**: 882—1956
Underwater communication. R. D. Isaak. **28**: 556—1956

LETTERS TO THE EDITOR
Historical note on the Haas effect. R. D. Fay and W. M. Hall. **28**: 131—1956

ABSTRACTS
Attenuation of ear protectors by loudness balance methods. J. Hershkowitz and L. Levine. **28**: 154—1956
Audibility of nonlinear distortion in sound transmission systems. A. V. Rimsky-Korsakov. **28**: 791—1956
Effects of noises on the neuromuscular activity. P. Bugard and J. D. Romani. **28**: 772—1956

Electrical responses from the cat's auditory nervous system to certain repetitive stimuli. Moise H. Goldstein, Jr., and Nelson Yuan-sheng Kiang. **28**: 757—1956
High-fidelity philosophy from a European standpoint. J. Rodrigues de Miranda. **28**: 792—1956
Limitations of human operators in handling competing voice messages and advantages gained by storage. John C. Webster, Lawrence N. Solomon, and L. Sharpe. **28**: 153—1956
Observations on the relationship between frequency discrimination and psychological phenomena. Bertram M. Harrison. **28**: 153—1956
Representation of some periodic stimuli in the bifrequency plane. Moise H. Goldstein, Jr. **28**: 153—1956

4.2 Anatomy and Physiology of the Ear

ABSTRACTS
Electrical responses from the cat's auditory nervous system to certain repetitive stimuli. Moise H. Goldstein, Jr., and Nelson Yuan-sheng Kiang. **28**: 757—1956
Fluid motion in cochlear models. Juergen Tonndorf. **28**: 756—1956
Mechanics of the cochlea. Georg von Békésy. **28**: 756(T)—1956

PATENTS
Membrane aid for hearing. Paul J. Annas. **28**: 1009—1956

4.3 Binaural Hearing. Localization

PAPERS
Effect of attenuating one channel of a dichotic circuit upon the word reception of dual messages. Gilbert C. Tolhurst and Robert W. Peters. **28**: 602—1956
Effect of large interaural time differences upon the judgment of sidedness. Hugh C. Blodgett, W. A. Wilbanks, and Lloyd A. Jeffress. **28**: 639—1956
Just noticeable differences in dichotic phase. J. Zwislocki and R. S. Feldman. **28**: 860—1956
Some measurements of interaural time difference thresholds. R. G. Klumpp and H. R. Eady. **28**: 859—1956
Some preliminary experiments on binaural time delay and intelligibility. Earl D. Schubert. **28**: 895—1956

ABSTRACTS
Dependence of localization on azimuth. S. V. Galginaitis. **28**: 153—1956
E. M. I. stereo recording and reproducing systems. G. F. Dutton. **28**: 793—1956
Interaural intensity ratios and sound localization. W. E. Feddersen, T. T. Sandel, D. C. Teas, and L. A. Jeffress. **28**: 765—1956
Just noticeable dichotic phase difference. J. Zwislocki and R. S. Feldman. **28**: 152—1956
Objective allocation of sound image from binaural stimulation. Yoshimitsu Kikuchi. **28**: 765—1956

4.4.5 Auditory Fatigue. (Started 1955.)

PAPERS
Speech reception and temporary hearing loss as a function of exposure to high-level noise. Gilbert C. Tolhurst. **28**: 557—1956

LETTERS TO THE EDITOR
Comments on "The relations of hearing loss to noise exposure," DR criteria, etc. Walter A. Rosenblith and Kenneth N. Stevens. **28**: 716—1956
Reply to Comments on "The relations of hearing loss to noise exposure." J. C. Webster and L. N. Solomon. **28**: 717—1956

ABSTRACTS
Auditory adaptation. James F. Jerger. **28**: 757—1956

4.5 Instruments Relating to Hearing, and for the Testing of Hearing. (See also 5.5.)

PAPERS
Sensitivity to changes in the interruption rate of white noise. G. H. Mowbray, J. W. Gebhard, and C. L. Byham. **28**: 106—1956
Temporary threshold shift as an index of noise susceptibility. James F. Jerger and Raymond Carhart. **28**: 611—1956

LETTERS TO THE EDITOR
Earphone, probe tube microphony, and audiometric zero. J. Donald Harris. **28**: 726—1956

ABSTRACTS
Apparatus for the calibration of hearing. Ethel R. Fleming. **28**: 153—1956
Experimental determination of threshold reliabilities for four methods of automatic, self-testing, pulse-tone audiometry. Richard J. Voots and Scott N. Reger. **28**: 772—1956

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Deaf aid apparatus. Maurice Gwynne Thomas. **28**: 331—1956
Hearing aid. Elroy W. Born. **28**: 1009—1956
Hearing aid attachment. George W. French. **28**: 1315—1956
Microphone. Emmanuel C. Nicholides. **28**: 519—1956
Microphone mounting for hearing aids. Robert L. Geib and Harold S. Wiley. **28**: 743—1956

4.6 Loudness, Threshold Determinations

PAPERS
Calculation of the loudness of complex noise. S. S. Stevens. **28**: 807—1956
Determination of the normal hearing reference zero. Aram Glorig, Robert Quiggle, D. E. Wheeler, and William Grings. **28**: 1110—1956
Identification and discrimination of components of elementary auditory displays. Irwin Pollack. **28**: 906—1956
Identification of sound level and "matching from sample." Irwin Pollack. **28**: 412—1956
Loudness adaptation for bands of noise. Edward C. Carterette. **28**: 865—1956
Temporary threshold shift as an index of noise susceptibility. James F. Jerger and Raymond Carhart. **28**: 611—1956

LETTERS TO THE EDITOR
Earphone, probe tube microphony, and audiometric zero. J. Donald Harris, **28**: 726—1956

ABSTRACTS
Concerning new methods of the measurement of hearing in man. G. V. Gersuni. **28**: 757—1956
Determination of the normal hearing reference level. Aram Glorig, William Grings, Douglas E. Wheeler, and Robert R. Quiggle. **28**: 772—1956
Differential thresholds to intensity variations while stimulating the opposite ear by a tone of same frequency. René Chocholle. **28**: 765—1956
Equal-loudness relations, and threshold of hearing, for pure tones. D. W. Robinson and R. S. Dadson. **28**: 763—1956
Evaluation of two loudness computational procedures for broad-band noises. Irwin Pollack. **28**: 764—1956
Fractional *versus* multiple loudness measurements. Lloyd B. Ham. **28**: 764—1956
Identification, discrimination, and "matching from a sample." Irwin Pollack. **28**: 153—1956
Interaural intensity ratios and sound localization. W. E. Feddersen, T. T. Sandel, D. C. Teas, and L. A. Jeffress. **28**: 765—1956
Measurements and computation of the loudness of noises. Gerhard Quietzsch. **28**: 764—1956
On the loudness of continuous noises. Eberhard Zwicker. **28**: 764—1956
Sones, spectra, and summation. S. S. Stevens. **28**: 152—1956
Underwater hearing thresholds. Paul M. Hamilton. **28**: 774—1956

4.7 Masking. (See also 5.5.)
PAPERS
Auditory detection of the presence and absence of signals in noise. Grant Fairbanks, Arthur S. House, and Jay Melrose. **28**: 614—1956
Detection of signals in noise: a comparison between the human detector and an electronic detector. Chalmers W. Sherwin, Frank Kodman, Jr., John J. Kovaly, Wilbert C. Prothe, and Jay Melrose. **28**: 617—1956
Effects of two message-storage schemes upon communications within a small problem-solving group. W. F. Bertsch, J. C. Webster, R. G. Klumpp, and P. O. Thompson. **28**: 550—1956
Intelligibility of UHF and VHF transmissions at fifteen representative air traffic control towers. H. R. Beitscher and J. C. Webster. **28**: 561—1956
Masked threshold and its relation to the duration of the masked stimulus. Edward J. Thwing. **28**: 606—1956
Masking of tonal signals. Lloyd A. Jeffress, Hugh C. Blodgett, Thomas T. Sandel, and Charles L. Wood, III. **28**: 416—1956
Masking of tones by bands of noise. R. C. Bilger and I. J. Hirsh. **28**: 623—1956
On the transmission and confirmation of messages in noise. James P. Egan, Frank R. Clarke, and Edward C. Carterette. **28**: 536—1956
Study of MAYDAY and S.O.S. as radiotelephony distress signals. Keith K. Neely. **28**: 554—1956
ABSTRACTS
Masking as a function of duration for various interaural phase combinations. H. C. Blodgett, W. E. Feddersen, and L. A. Jeffress. **28**: 764—1956
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Physiological evidence for the masking of low frequencies by high. Bruce H. Deatherage, Hallowell Davis, and Donald H. Eldredge. **28**: 757—1956
4.8 Phase Effects. (See also 4.3.)
ABSTRACTS
Intelligibility increase accompanying time interval between ears. Earl D. Schubert. **28**: 153—1956
Just noticeable dichotic phase difference. J. Zwislocki and R. S. Feldman. **28**: 152—1956
4.9 Pitch
LETTERS TO THE EDITOR
Comment on van der Tweel's suggestion concerning the implication of diplacusis for auditory theory. J. C. R. Licklider. **28**: 718—1956
Implication for auditory theory of unitary pitch perception despite diplacusis. L. H. van der Tweel. **28**: 718—1956
On memorizing absolute pitch. Max F. Meyer. **28**: 718—1956
ABSTRACTS
Intonation in ensemble string performance. Charles R. Shackford. **28**: 150—1956
Residue phenomenon and its theoretical implications. J. F. Schouten. **28**: 757—1956
4.10 Subjective Tones
PAPERS
Neurological theory of beat tones. Max F. Meyer. **28**: 877—1956
Onset and growth of aural harmonics in the overloaded ear. Merle Lawrence and Phillip A. Yantis. **28**: 852—1956
ABSTRACTS
Cochlear distortion and the loudness recruitment phenomenon. Gordon Flottorp. **28**: 765(T)—1956
4.11 Theories of Hearing
PAPERS
Growing points in multichannel communication. D. E. Broadbent. **28**: 533—1956
ABSTRACTS
Electrical responses from the cat's auditory nervous system to certain repetitive stimuli. Moise H. Goldstein, Jr., and Nelson Yuan-sheng Kiang. **28**: 757—1956
Representation of some periodic stimuli in the bifrequency plane. Moise H. Goldstein, Jr. **28**: 153—1956
4.13 Ear Acoustical Impedance
ABSTRACTS
Impedance at the eardrum. Josef J. Zwislocki. **28**: 773—1956
4.14 Ear Protectors, Ear Plugs. (Started 1956.)
PAPERS
Noise bands *versus* pure tones as stimuli in measuring the acoustic attenuation of ear protective devices. J. C. Webster, P. O. Thompson, and H. R. Beitscher. **28**: 631—1956
ABSTRACTS
Evaluation of ear protective devices. David T. Blackstock and Ronald G. Hansen. **28**: 773—1956
Low-frequency attenuation of cover-type ear defenders in relation to the flesh impedance. E. A. G. Shaw and G. J. Thiessen. **28**: 773—1956
Noise canceling headset—an active ear defender. E. D. Simshauser, W. F. Meeker, and A. V. Balakrishnan. **28**: 773—1956
PATENTS
Ear protector. Henning E. Von Gierke. **28**: 519—1956

5. Applied Acoustics, Instruments and Apparatus. ***(See also 2.8, 4.5, 9.6, 10.3, 13.11, 13.11n, and 13.11t.)***

5.1 General, Unclassified
PAPERS
Acoustic wattmeter. T. J. Schultz. **28**: 693—1956
Electronic control of noise, vibration, and reverberation. Harry F. Olson. **28**: 966—1956
Experimental characteristics of continuously variable resonant frequency crystal systems. Floyd Dunn, Frank J. Fry, and William J. Fry. **28**: 275—1956
Linguistic prerequisites for a speech writer. Yuen Ren Chao. **28**: 1107—1956
Performance of a type B fog horn. G. J. Thiessen. **28**: 281—1956
Phonetic typewriter. Harry F. Olson and Herbert Belar. **28**: 1072—1956
Shock spectrum computer for frequencies up to 2000 cps. Charles T. Morrow and Donald E. Riesen. **28**: 93—1956
Vobanc—A two-to-one speech band-width reduction system. Bruce P. Bogert. **28**: 399—1956
LETTERS TO THE EDITOR
Concerning a reference quantity for power levels. Cyril M. Harris. **28**: 993—1956
On reference quantities for levels. Robert W. Young. **28**: 499—1956
On the use of decibel terminology in multiplying circuits. T. J. Schultz. **28**: 498—1956
Suggestion on reference quantities for power levels. Leo L. Beranek. **28**: 725—1956
ABSTRACTS
Instrumentation for field studies of sound propagation over ground. Stanley K. Oleson. **28**: 158—1956
Study of high-level pressure fluctuations by acoustic methods (Etudes des Fluctuations de Pression à fort Niveau par des Procédes Acoustiques). P. Michaud and J. Mattei. **28**: 796—1956
PATENTS
Acoustic pulse jet engine with acoustic air intake system. Albert G. Bodine, Jr. **28**: 744—1956
Compression tester. Lawrence P. Brissette and John G. Haviland. **28**: 744—1956

Device for determining vibration sensitivity. Harold E. Hancock, Samuel Goldblatt, and Jerry M. Mason. **28**: 1316—1956
Device to produce sleep inducing sound. Max H. Leavenworth. **28**: 142—1956
Dual range string accelerometer. Wallace H. Allan. **28**: 744—1956
Dynamotor driven music box amplifier. Robert D. Nelson. **28**: 142—1956
Electric pressure transducer. Gabriel M. Giannini and Harry M. Riegelman, Jr. **28**: 520—1956
Engine detonation control by acoustic methods and apparatus. Albert G. Bodine, Jr. **28**: 1315—1956
Hydraulic oscillators. Harold Eliot Baliol Scott. **28**: 744—1956
Musical whistle. John H. Bacon. **28**: 1315—1956
Noisemaker toy for attachment to shoe. Victor H. Chatten. **28**: 520—1956
Noisemaking attachment for bicycles. Charles W. Steele. **28**: 520—1956
Reed sounder. George S. Lawson. **28**: 1316—1956
Replaceable acoustic absorber for internal combustion engine detonation suppression. Albert G. Bodine, Jr. **28**: 331—1956
Sleep inhibiting device. Warren E. Morrison. **28**: 142—1956
Sonically actuated valve. Albert G. Bodine, Jr. **28**: 519—1956
Sound producing fish lure. Taylor Trout. **28**: 1315—1956
Sound reproducer. George D. Grazier. **28**: 331—1956
Vibratory horn motor comprising an electrical solenoid and interrupter. Leslie Spencer Wirt. **28**: 520—1956

BOOK REVIEWS

A textbook of sound. A. B. Wood. (Reviewed by Osman K. Mawardi.) **28**: 731—1956
Grundlagen der Elektroakustik. W. Reichardt. (Reviewed by Harry F. Olson.) **28**: 1303—1956
Practical electroacoustics. Michael Rettinger. (Reviewed by F. K. Harvey.) **28**: 320—1956

5.2 Amplifiers and Attenuators

ABSTRACTS

Effect of a negative impedance source on loudspeaker performance. Richard E. Werner. **28**: 792—1956

5.3 Acoustic and Mechanical Impedance Measurement. (See also 11.4.)

PAPERS

Mechanical impedance measurements of soils. Walter R. Runyan and Robert E. Anderson. **28**: 73—1956
Some notes on the measurement of acoustic impedance. Osman K. Mawardi. **28**: 351—1956
Transducer calibration by impedance measurements. Gerald A. Sabin. **28**: 705—1956

ABSTRACTS

Direct-reading acoustical impedance meter. R. M. Carrell. **28**: 156—1956
Insertion loss of side branch resonators. Uno Ingard. **28**: 149—1956
Irradiation changes of acoustical and mechanical constants in aluminum. Isaai Lefkowitz and Paul B. Oncley. **28**: 152—1956
Measurements of viscoelastic properties of animal tissues. Edwin R. Fitzgerald, Eugene Ackerman, and James W. Fitzgerald. **28**: 778—1956

SUBTITLES

Impedance measurements on human subjects. Ernst K. Franke. **28**: 1279—1956

5.4 Analyzers and Filters, Mechanical and Electrical. Acoustic Filters. Oscillographs. (See also 5.15.)

PAPERS

Acoustic filtering in a moving medium. Robert F. Lambert. **28**: 1054—1956
Equivalent circuit of a resonant, finite, isotropic elastic circular disk. Roshan Lal Sharma. **28**: 1153—1956
Performance of ceramic ferrite resonators as transducers and filter elements. Cornelis M. van der Burgt. **28**: 1020—1956
Shock spectrum computer for frequencies up to 2000 cps. Charles T. Morrow and Donald E. Riesen. **28**: 93—1956
Side branch insertion loss in a moving medium. Robert F. Lambert. **28**: 1059—1956
Vobanc—A two-to-one speech band-width reduction system. Bruce P. Bogert. **28**: 399—1956

ABSTRACTS

Insertion loss of side branch resonators. Uno Ingard. **28**: 149—1956
Small volume tuned acoustic filters for reciprocating compressors. Charles K. Leeper and Priscilla M. Raymond. **28**: 758—1956

SUBTITLES

Calculation of loudness with third-octave bands. S. S. Stevens. **28**: 826—1956

PATENTS

Magnetostrictive oscillator. Heinz Bloch. **28**: 520—1956
Mechanical filters. Melvin L. Doelz. **28**: 520—1956
Variable band-width band-pass filter. James J. Roark. **28**: 744—1956

BOOK REVIEWS

Einführung in die Siebschaltungstheorie der Elektrischen Nachrichtentechnik (Introduction to the filter theory in electrical communication). Richard Feldtkeller. **28**: 997(T)—1956

5.5 Audiometers. (See also 4.4 and 4.5.)

ABSTRACTS

Apparatus for the calibration of hearing. Ethel R. Fleming. **28**: 153—1956
Contribution to the study of specifications for audiometers (Contribution à l'Etude de la Spécifications des Audiomètres). Pierre Chavasse and René Lehmann. **28**: 772—1956
Experimental determination of threshold reliabilities for four methods of automatic, self-testing, pulse-tone audiometry. Richard J. Voots and Scott N. Reger. **28**: 772—1956

5.5.1 Broadcasting

PATENTS

Multichannel communication circuit. Benjamin Wolfe. **28**: 744—1956

5.8 Loudspeakers, Horns. (See also 5.13, 5.17, and 5.18.)

PAPERS

Improved type B fog-horn system using exponential and catenoidal horns. G. J. Thiessen. **28**: 356—1956
Investigation of scalar wave fields by means of instantaneous directivity patterns. Jaroslav Pachner. **28**: 90—1956
On the dependence of directivity patterns on the distance from the emitter. Jaroslav Pachner. **28**: 86—1956
Performance of a type B fog horn. G. J. Thiessen. **28**: 281—1956

LETTERS TO THE EDITOR

Hypex. Philip B. Williams. **28**: 315—1956

ABSTRACTS

Attenuation of high-amplitude sound waves in exponential horns. Isadore Rudnick. **28**: 795—1956
Directional loudspeakers for sound reinforcement. S. Hill. **28**: 792(T)—1956
Displacement pickup for measuring the motion of a loudspeaker cone at many points. K. R. McLachlan. **28**: 793—1956
Distributed loudspeaker. Sipko L. Boersma. **28**: 792—1956
Effect of a negative impedance source on loudspeaker performance. Richard E. Werner. **28**: 792—1956
Modifications to improve the efficiency of a diaphone-type fog horn. G. J. Thiessen. **28**: 157—1956

Output of a sound source in a reverberation chamber. Richard V. Waterhouse. **28**: 149—1956
Transient response of loudspeaker paper diaphragms. L. Alons. **28**: 791—1956
SUBTITLES
Schematic diagram of German sound generator. Abbott A. Putnam and William R. Dennis. **28**: 253—1956
PATENTS
Acoustic cabinet. Wilhelmus Adrianus Jacobus Liebert. **28**: 744—1956
Loudspeaker. Paul W. Klipsch. **28**: 745—1956
Loudspeaker. Julius B. Lokkesmoe. **28**: 521—1956
Loudspeaker assemblies. Ralph Leighton West. **28**: 521—1956
Loudspeaker cone mounting. Gordon S. Carbonneau. **28**: 521—1956
Loudspeaker construction. William C. Benjamin. **28**: 745—1956
Loudspeaker for outdoor theaters. Angelo Boudouris. **28**: 520—1956
Loudspeaker structure. Harry F. Olson and John Preston. **28**: 745—1956
Membrane for sound reproducing devices. Eugene Reisz. **28**: 142—1956
Neck and shoulder forming apparatus for making acoustic diaphragms. Colin Kyle. **28**: 521—1956
Novel, small, extended low frequency response, loudspeaker enclosure. Ernest A. Tavares. **28**: 142—1956
Reinforced acoustic diaphragms and method of making the same. Joseph B. Brennan. **28**: 744—1956
Sound transducers. Joseph Leon. **28**: 745—1956
Wide-band loudspeaker. Gerhard Buchmann. **28**: 745—1956
BOOK REVIEWS
Hi-Fi loud speakers and enclosures. Abraham B. Cohen. **28**: 731(T)—1956

5.9 Microphones, Vibration Microphones. Microphone Calibration Equipment and Techniques. (See also 5.18 and 13.11t.)

PAPERS
Air-stiffness controlled condenser microphone. T. J. Schultz. **28**: 337—1956
Measurement of noise canceling effectiveness of microphones. Leo M. Levine and Joseph Hershkowitz. **28**: 973—1956
Shock spectrum computer for frequencies up to 2000 cps. Charles T. Morrow and Donald E. Reisen. **28**: 93—1956
LETTERS TO THE EDITOR
On the distinction between velocity-sensitive and pressure gradient-sensitive microphones. T. J. Schultz. **28**: 498—1956
Probe tube for the W. E. 640AA condenser microphone. Joseph Hershkowitz. **28**: 726—1956
ABSTRACTS
Analog computation of probe microphone response. Robert W. Leonard. **28**: 759—1956
Calibration of stiff microphones by means of a grille. Henry Gerbert. **28**: 156—1956
Description of Altec 21-BR type microphones and operating characteristics. J. K. Hilliard and W. T. Fiala. **28**: 157—1956
Displacement pickup for measuring the motion of a loudspeaker cone at many points. K. R. McLachlan. **28**: 793—1956
"Infinite line" microphone probe for studying combustor resonance. Perry L. Blackshear, Jr., and Warren D. Rayle. **28**: 800—1956
Transient performance of transducers for ultrasonic materials inspection. E. G. Cook. **28**: 156—1956
Transient performance of transducers for ultrasonic materials inspection. Background. H. E. Van Valkenburg. **28**: 156—1956
Vibration measurement by interferometer. Seymour Edelman, Earle Jones, and Ernest R. Smith. **28**: 780—1956
SUBTITLES
Development of a microphone windscreen. C. G. Van Niekerk. **28**: 681—1956
Hydrophone probe. Robert H. Mellen. **28**: 450—1956
Sound wave at oblique incidence upon the pair of microphone elements. T. J. Schultz. **28**: 694—1956
PATENTS
Ambient sound excluding dictation mask. Horace L. Webb. **28**: 1316—1956
Dynamic microphone. Harry F. Olson and John Preston. **28**: 746—1956
Microphone having resonant compensating means. Geert Schenkel. **28**: 522—1956
Microphones. Ronald Hastings Rackham and Terence Brian Livingstone. **28**: 522—1956
BOOK REVIEWS
Measurement of vibration. Ervin E. Gross, Jr. (Reviewed by Floyd A. Firestone.) **28**: 136—1956

5.10 Navigational Instruments Using Air Sound. Altitude Measuring Insturments. Sound Ranging (for Underwater Ranging see 13.11n). Geophysical Prospecting

PAPERS
Mechanical impedance measurements of soils. Walter R. Runyan and Robert E. Anderson. **28**: 73—1956
Theory of propagation of elastic waves in a fluid-saturated porous solid. I. Low-frequency range. M. A. Biot. **28**: 168—1956
Theory of propagation of elastic waves in a fluid-saturated porous solid. II. Higher frequency range. M. A. Biot. **28**: 179—1956
Unexpected waves observed in fluid-filled bore holes. J. E. White and H. H. Frost. **28**: 924—1956
ABSTRACTS
Difficulties in seismic prospecting resulting from bubbles in fluids. J. O. Parr, Jr. **28**: 801—1956
Spherical waves coupled to a one-dimensional wave guide. James E. White. **28**: 801—1956
PATENTS
Acoustic pulse detector. Edward E. Simmons, Jr. **28**: 1010—1956
Acoustic velocity-electrical resistance correlation well logging. Allen A. Stripling. **28**: 522—1956
Acoustic well logging system. Pat McDonald. **28**: 746—1956
Apparatus for making seismic surveys. Frederick W. Lee. **28**: 1010—1956
Apparatus for supersonic ranging and detection. Harry B. White, Maurice D. Stahl, and Jack E. Duff. **28**: 1010—1956
Directional sound detector. James Snyder. **28**: 746—1956
Electromechanical acoustic pulser. Gerald C. Summers and John O. Ely. **28**: 1010—1956
Electrostatic seismometer. Glen Peterson. **28**: 747—1956
Geophysical transducer. Albert G. Bodine, Jr. **28**: 1316—1956
Low-frequency vibration detection device. John V. Atanasoff and Ernest R. Kolsrud. **28**: 1316—1956
Marine cable for seismic surveying of submerged areas. John Donald MacKnight. **28**: 1010—1956
Method and apparatus for analysis of seismographic records. Burton D. Lee. **28**: 747—1956
Method and apparatus for use in surveying earth formation by explosion and seismograph. Clyde E. Bannister. **28**: 522—1956
Method of deep well surveying. Willis O. Bazhaw. **28**: 523—1956
Method of seismic prospecting. Raymond G. Piety. **28**: 523—1956
Method of seismic prospecting. Robert B. Rice and Sam D. Elliott. **28**: 747—1956

Methods of identifying seismic waves. Burton D. Lee. **28**: 746—1956
Pressure-sensitive deep well seismograph detector. Thomas Bardeen, Fox Chapel, and Roger W. Williams. **28**: 746—1956
Refraction shooting. Lawrence Merton Swift. **28**: 522—1956
Seismic detector. Malcolm D. McCarty and Kenneth W. McLoad. **28**: 1316—1956
Seismic geophysical exploration. William T. Born, Lawrence Y. Faust, and Alfred Wolf. **28**: 523—1956
Seismic method of geological exploration. Oscar Weiss. **28**: 522, 523—1956
Seismic method of geophysical exploration. Arthur A. Brandt. **28**: 747—1956
Seismic prospecting. William A. Sorge. **28**: 746—1956
Seismic shear wave generator. Stanley N. Heaps. **28**: 1010—1956
Seismic surveying. William Harry Mayne. **28**: 747—1956
Shear wave seismic exploration. James E. White and Stanley N. Heaps. **28**: 1010—1956
Sonic earth boring drill with self-resonating vibration generator. Albert G. Bodine, Jr. **28**: 522—1956
Sonic speed recorder. Clement George Ewertz. **28**: 332—1956
System and method of generating seismic waves in the earth. James E. Hawkins and William E. Pugh. **28**: 747—1956
Water borne means for making seismic surveys. Le Roy C. Paslay, George M. Pavey, Jr., and Frank P. Wipff. **28**: 747—1956

5.11 Oscillators, Electrical and Mechanical

PAPERS
Performance of a type B fog horn. G. J. Thiessen. **28**: 281—1956

5.13 Public Address Systems and Sound Picture Installations

PAPERS
Electronic control of noise, vibration, and reverberation. Harry F. Olson. **28**: 966—1956

ABSTRACTS
Audibility of nonlinear distortion in sound transmission systems. A. V. Rimsky-Korsakov. **28**: 791—1956
Effect of sound reinforcement system in a room on the reverberation time and clearness. Tadamoto Nimura and Ken'iti Kido. **28**: 792—1956

PATENTS
Loudspeaking communication system. Robert A. Clark, Jr. **28**: 523—1956
Methods and apparatus for minimizing regenerative feedback. John D. Goodell and Tenny Lode. **28**: 523—1956
Perspective sound systems. Clarence Robert Fine. **28**: 523—1956
Priority public address system. Edward S. Peterson. **28**: 523—1956
Sound-reproducing systems. Victor Albert Foot. **28**: 747—1956

5.14 Rayleigh Disks

PAPERS
Anomalous behavior of Rayleigh disk for high-frequency waves. Jobu Awatani. **28**: 297—1956

ABSTRACTS
Flux of angular momentum and the Rayleigh disk problem. Peter J. Westervelt. **28**: 796—1956

SUBTITLES
Directional characteristics of the Rayleigh disk. Jobu Awatani. **28**: 299—1956

5.15 Sound Level Meters. Level Recorders. Sound Pressure Measurement. (See also 5.4.)

PAPERS
Acoustic wattmeter. T. J. Schultz. **28**: 693—1956

LETTERS TO THE EDITOR
Suggestion on reference quantities for power levels. Leo L. Beranek. **28**: 725—1956

ABSTRACTS
Automatic analyzer for unsteady noise in connection with research on occupational hearing loss. J. van den Eijk. **28**: 759(T)—1956
Motorcycle noise testing in Bermuda. Walter C. Hadley. **28**: 163—1956
Portable recorder for acoustical measurements. George W. Kamperman. **28**: 759—1956

SUBTITLES
Calculation of loudness with third-octave bands. S. S. Stevens. **28**: 826—1956
Chart for determining the loudness in a half-octave band as a function of the SPL in the band. S. S. Stevens. **28**: 828—1956
Chart for determining the loudness in a third-octave band as a function of the SPL in the band. S. S. Stevens. **28**: 826—1956
Table relating phons and sones. S. S. Stevens. **28**: 829—1956

5.16 Sound Recording and Reproducing. General

PAPERS
Learning, a major factor influencing preferences for high-fidelity reproducing systems. Roger E. Kirk. **28**: 1113—1956

LETTERS TO THE EDITOR
Note on the calibration of disk recording by interference patterns. P. E. Axon and W. K. E. Geddes. **28**: 129—1956

ABSTRACTS
Audibility of nonlinear distortion in sound transmission systems. A. V. Rimsky-Korsakov. **28**: 791—1956
High-fidelity philosophy from a European standpoint. J. Rodrigues de Miranda. **28**: 792—1956

PATENTS
Combination magnetic and photographic sound reproducer and magnetic recorder. James L. Pettus and Arthur C. Albee. **28**: 332—1956
Combination photographic and magnetic sound mechanism. James L. Pettus. **28**: 143—1956
Electromagnetic sound recorder and reproducer. Weldon T. Ellis, Jr. **28**: 523—1956
Electrostatic recording and reproducing system. John E. Evans. **28**: 524—1956
Simultaneous sound motion picture system. Max Mejia Vides. **28**: 748—1956
Sound film apparatus and the like. Hans Friess. **28**: 332—1956

5.16d Disk Recording (including cutting and embossing)

LETTERS TO THE EDITOR
Note on the calibration of disk recording by interference patterns. P. E. Axon and W. K. E. Geddes. **28**: 129—1956

PATENTS
Magnetronic circuit-controlling devices. Kube Krisch. **28**: 1317—1956
Phonographic device. Ladis H. Ottofy. **28**: 1010—1956
Phonograph pickup. Heiman W. Koren. **28**: 524—1956
Phonograph transducer. Lloyd J. Andres. **28**: 748—1956
Sound recorder and reproducer. Edgar L. Steed. **28**: 748—1956
Sound recording and reproducing apparatus. Edwin Malcolm Payne and Henry Milburn Harrison. **28**: 524—1956
Sound recording apparatus. William S. Bachman. **28**: 1316—1956
Talking machine. Hubertus Jan Smits. **28**: 143—1956
Turntable and tone arm control. Norman F. Martin and Robert H. Dreisbach. **28**: 748—1956

5.16f Film Recording (by photographic means)

PATENTS
Apparatus for translating sound waves into a signal for reception by a light sensitive part. Charles W. Roberts. **28**: 524—1956
Combined sound change-over and volume control for sound motion picture projectors. Evans C. Wiley. **28**: 524—1956

Sound change-over systems. John F. Byrd and James D. Phyfe. **28**: 524—1956

5.16m Magnetic Recording

PAPERS

Noise in magnetic recording tapes. D. H. Howling. **28**: 977—1956

ABSTRACTS

Apparatus for alteration of the playback time of a sound record. Anton M. Springer. **28**: 792—1956

Some instrument aids in use in Western Germany for checking professional standards in audio equipment. Wilhelm Franz. **28**: 792—1956

PATENTS

Actuating mechanism for magnetic instrument movable elements. Edmund Barany and Melvin Sackter. **28**: 145—1956

Anticross-talk multitrack magnetic sound system. Kurt Singer. **28**: 749—1956

Automatic sound reproducing device. Henry H. Bruderlin and George K. Mann. **28**: 525—1956

Cathode-ray tube. Max Louis Goeppinger and Rowland L. Miller. **28**: 526—1956

Composite magnetic recording tape. Robert C. Mathes. **28**: 146—1956

Cross-talk prevention system. Thomas C. Sharp. **28**: 749—1956

Drive and control mechanism for magnetic recording equipment. Daniel H. Dashiell and Lloyd J. Bobb. **28**: 144—1956

Drive for magnetic record transducing apparatus. Alfred L. W. Williams. **28**: 143—1956

Driving mechanism for magnetic recorder. Eudore Desire Brasseur. **28**: 750—1956

Electromagnetic transducer head. Marvin Camras. **28**: 146—1956

Equipment for use with elongated magnetic records. Frank J. Reed and Lloyd J. Bobb. **28**: 144—1956

Equipment for use with magnetic tape records. Frank. J. Reed. **28**: 332, 333—1956

Equipment for use with magnetic tape records. Frank J. Reed and Lloyd J. Bobb. **28**: 526—1956

Erase head. Hugh A. Howell and Harold W. Bauman. **28**: 748—1956

Erasing magnet mounting and assembly. Edmund Barany, Harold W. Bauman, and Melvin Sackter. **28**: 145—1956

Film synchronizing marker. William A. Mueller. **28**: 751—1956

Interference-free multimagnetic track system. James L. Pettus and Arthur C. Blaney. **28**: 527—1956

Magnetic conditioning device. Wesley L. Eddy. **28**: 147—1956

Magnetic head. Olin L. Dupy. **28**: 525—1956

Magnetic heads for magnetic recording and reproducing apparatus. Masaru Ibuka and Kazuo Iwama. **28**: 332—1956

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PAPERS
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ABSTRACTS
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ABSTRACTS
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6.6 Pianos and Other Keyboard Stringed Instruments
PAPERS
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ABSTRACTS
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Tailpiece for string instrument. Otto Petrus Bramson. **28**: 1319—1956
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Violin bow. Robert T. Martin. **28**: 753—1956
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6.8 Wood Winds

PATENTS
Cast liner for woodwind instruments. Hugh W. Loney. **28**: 753—1956
Device for use with musical instruments. Maurice Malcolm Porter. **28**: 528—1956
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PATENTS
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Electric bellow-operated music experiment. René Seybold. **28**: 1013—1956
Harmonica construction. William Kratt. **28**: 754—1956
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ABSTRACTS

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9. Speech and Singing

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9.4 Frequency of Occurrence of Speech Sounds

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9.7 Speech Pitch
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9.8 Speech Power, Singing Voice Power
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Effects of vocal force on the intelligibility of speech sounds. J. M. Pickett. 28: 902—1956
9.10 Phonetics
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Phonetic typewriter. Harry F. Olson and Herbert Belar. 28: 1072—1956
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10. Ultrasonics (Supersonics)

10.1 General, Unclassified
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Propagation of longitudinal waves and shear waves in cylindrical rods at high frequencies. H. J. McSkimin. **28**: 484—1956
Scattering of sound by sound. Uno Ingard and David C. Pridmore-Brown. **28**: 367—1956
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10.2 Light Affected by Ultrasonic Waves

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10.3 Ultrasonic Instruments. (See also 5.18.)

PAPERS
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New method for the calibration of a plane hydrophone. Arthur R. Laufer and Garland L. Thomas. **28**: 951—1956
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Arrangement of quartz crystal in high pressure cylinder, ultrasonic echo-ranging system. J. F. Mifsud and A. W. Nolle. **28**: 470—1956
Determination of focal intensity. T. F. Hueter, H. T. Ballantine, Jr., and W. C. Cotter. **28**: 194—1956
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Apparatus for emitting and receiving elastic waves. Ivan H. Ots. **28**: 335—1956
Apparatus for generating ultrasonic waves. Carl L. Meng. **28**: 335—1956
Automatic scanning and recording device for ultrasonic inspection of materials. Howard E. Van Valkenburg and Edward G. Cook. **28**: 1319—1956
Device for transfer of supersonic vibrations. Heinz Born. **28**: 754—1956
Magnetostrictive cutting tool. Leo Mackta. **28**: 755—1956
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Rotative probe for ultrasonic detecting devices. Paul Renaut. **28**: 529—1956
Thermionic valve feeding circuit for piezoelectric transducer. Edward Arthur Newman and David Oswald Clayden. **28**: 1319—1956
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10.4 Gases, Ultrasonic Velocities, Dispersion, and Absorption. (See also 11.3.)

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10.6 Solids, Ultrasonic Velocities, Dispersion, and Absorption

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11.2.1 Gross Movement of Matter by Sound or Vibration. Acoustic Streaming. Chladni Figures. Kundt's Striae. Sensitive Flames. (See also 5.14 and 10.7.)

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Radiation pressure of second sound in liquid helium. Erna M. J. Herrey. **28**: 796—1956
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11.4 Radiation from Vibrating Objects. Acoustic Impedance. Mechanical Impedance. (See also 5.3 and 13.7.)

PAPERS
Directional circular arrays of point sources. Walter Welkowitz. **28**: 362—1956
Investigation of scalar wave fields by means of instantaneous directivity patterns. Jaroslav Pachner. **28**: 90—1956
On the dependence of directivity patterns on the distance from the emitter. Jaroslav Pachner. **28**: 86—1956
Reflection of a plane acoustic wave from a surface of nonuniform impedance. H. S. Heaps. **28**: 666—1956
Reflection of plane sound waves from an irregular surface. J. G. Parker. **28**: 672—1956
Some notes on the measurement of acoustic impedance. Osman K. Mawardi. **28**: 351—1956
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Bore-hole coupling experiment. F. A. Angona and J. E. White. **28**: 801—1956
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11.5 Sounds of Finite Amplitude. Distortion. (See also 13.10.)

PAPERS
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Successful method of attack on plane progressive finite waves. R. D. Fay. **28**: 910—1956

ABSTRACTS
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Experimental study of the scattering of sound by flowing turbulence. George Lamb, Jr., Richard H. Lyon, David C. Pridmore-Brown, and Uno Ingard. **28**: 158—1956
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Modified analysis for plane traveling waves of finite amplitude. Richard D. Fay. **28**: 155—1956
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Some second-order effects in macrosonics. Peter J. Westervelt. **28**: 155—1956
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Turbulence and intense sound fields. Robert H. Kraichnan. **28**: 157—1956

11.6 Sound in Tubes

PAPERS
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ABSTRACTS
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11.6.1 Sources of Sound. (See also 7.8 and 11.4.)

ABSTRACTS

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11.7 Theory of Waves and Vibrating Systems. (See also 5.4 and 11.1.5.)

PAPERS

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11.8 Biological Effects of Vibration and Sound. (See also 10.9.)
PAPERS
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ABSTRACTS
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12. (Changed to Section 0)

13. Underwater Sound

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PAPERS
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ABSTRACTS
Underwater hearing thresholds. Paul M. Hamilton. 28: 774—1956

13.2 Propagation of Sound in Water. Attenuation. Fluctuation
PAPERS
Estimate of the effect of turbulence in the ocean on the propagation of sound. John A. Knauss. 28: 443—1956
On the pressure dependence of sound absorption in liquids. Leonard Liebermann. 28: 1253—1956
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ABSTRACTS
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13.3 Velocity of Sound in Water. Refraction. Doppler Effect
LETTERS TO THE EDITORS
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13.4 Reflection. Echoes. Structures for Absorbing Sound in Water
PAPERS
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PATENTS
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PAPERS
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13.6 Scattering. Reverberation in Water
PAPERS
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ABSTRACTS
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13.7 Radiation from Objects Vibrating under Water. Acoustical Impedance. Mechanical Impedance
PAPERS
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PATENTS
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13.8 Sound Generation by Fluid Motion, Bubbles, Turbulence, or Cavitation
PAPERS
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13.10 Sounds of Finite Amplitude in Water. Explosions. Distortion. Cavitation. (See also 11.5.)

PAPERS

Attenuation of ultrasonic waves of finite amplitude in liquids. V. Narasimhan and R. T. Beyer. **28**: 1233—1956

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13.11 Instruments Relating to Underwater Sound. General

PAPERS

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ABSTRACTS

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13.11n Navigational Instruments Using Underwater Sound. Underwater Listening and Echo Ranging Devices. Sonar

PAPERS

Underwater communication. R. D. Isaak. **28**: 556—1956

PATENTS

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Sonic depthometer. Reginald A. Hackley and Edward S. Rogers. **28**: 1320—1956

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13.11t Transducers for Underwater Sound. Transducer Calibration. (See also 5.18.)

PAPERS

Dynamic magnetostrictive properties of Alfenol. C. M. Davis and S. F. Ferebee. **28**: 286—1956

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ABSTRACTS

Underwater sound velocity meter. Sigfrid B. Wennerberg. **28**: 780—1956

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PATENTS

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